United States Environmental Protection Agency

Review and Comment
Technical Memorandum #7 - Selection of Models for the
Public Health Evaluation, OU1
Rocky Flats Plant, Colorado
August 1992

1. *Figure 2-1 on page 2-2 and subsequent text indicate that the french drain completely intercepts contaminated ground water migrating from the OU1 individual hazardous substances sites. In fact, the fate of the OU1 contaminated shallow ground water as depicted in Figure 2-1 has not been adequately established. A flow net of the entire 881 Hillside area is required. EPA understands that additional monitoring wells are currently being constructed by DOE to collect water level data at the west end of the french drain to support a flow net which incorporates high flow (April through June) data. Until this work is complete, the adequacy of the french drain is not firmly established and the possibility of shallow ground water bypassing the french drain must be considered.*

Response: Interception of ground water at the western terminus of the french drain has been addressed in the Preliminary Assessment Memorandum entitled Hydrogeology and Ground Water Contamination at the Western Terminus of the French Drain. A detailed presentation of this material will be included in the Draft final RFI/RI Report.

2. *The consideration of the effectiveness of the french drain is relevant only after the baseline risk assessment has been completed. The baseline risk assessment is an assessment of the risks posed at a site in the absence of remedial action. Remedial action includes interim remedial actions. Therefore, the french drain cannot be considered in the calculation of baseline risk at OU1. The results of the baseline risk assessment will be used along with other factors to make remedial action decisions at OU1 and to determine the remediation goals should action be warranted.*

After the remediation goals are determined, interim actions must be considered. If, for instance, the french drain has achieved the required remediation goal, no further action will be required. If the french drain has achieved only part of the remediation goal, no further action will be required. If the french drain has achieved only part of the remediation goal, remedial alternatives must be considered to make up the difference.

Response: The Baseline Risk Assessment (BRA) quantifies risk under the assumption of no future action. Since the French drain, recovery well, and water treatment system are already in place, it is reasonable to consider these features as part of the existing 881 Hillside site conditions. Since the French drain and related structures reduce the risk, as detailed in Rockwell International (1988), additional assessment of risk without considering the French drain is not warranted.

A-OU01-000425

The economic and technical justification for implementing the French drain is provided by EG&G (1990). That document also summarizes the findings of the feasibility report (Rockwell International, 1988). The following primary observations and conclusions are discussed in the French drain decision document (EG&G 1990):

- Downgradient of the 881 Hillside Area, alluvial ground-water chemistry (upper hydrostatigraphic unit) is characterized by the absence of volatile organic carbon compounds. This observation was also made in the Phase III Work Plan (EG&G 1991). Data collected as part of the Phase III RI supports this observation. The same observations generally apply to inorganic and radioactive contaminants (see page 2-28 of EG&G 1990).

- Three alternative remedial options were considered in detail based on an agreement between DOE and the State of Colorado in June, 1989 (EG&G 1990, page 4-3). The French drain was chosen because: (1) it "is the most extensive interim action considered...", (2) it will effectively collect contaminated groundwater from the 881 Hillside Area, and (3) it will significantly reduce potential releases to downgradient groundwater. Data collected prior to the Phase III Work Plan and during the Phase III RI support these conclusions. The data collected thus far indicate that the French drain is located correctly and will collect all shallow contaminated ground water.

- The French drain is designed such that it "will intercept and contain all alluvial ground water flowing from the area: (EG&G 1990, page 4-46). Furthermore, the drain is keyed into bedrock, has a collection system and has a small-permeability geomembrane on its downgradient side to minimize flow out the southern face of the drain.

- Monitoring data to date has not indicated any problems with the ability to intercept and contain ground water flowing from the area. Extensive monitoring is ongoing and the effectiveness of the french drain will be evaluated as part of Feasibility Study.

The items mentioned above have been discussed in several meetings, including the September 4, 1992. At that meeting, shortly after receipt of EPA comments, DOE offered to reinstate ground water modeling provided the schedule could be extended another three months to conduct such modeling. EPA suggested that another extension would not be possible and that justification for not modeling should be discussed in the RI. Given the above discussion, the French drain is considered to be part of the site.

3. On page 2-3, Figure 2-2 implies that surface water runoff cannot bypass the french drain. As presently constructed, the majority of storm water runoff flows across the finished surface of the french drain and continues down the 881 Hillside. Figure 2-2 should be clarified to exclude its applicability to surface water impacts.

Response: Figure 2-2 will be clarified in the PHE to show that surface water can flow across the finished surface of the french drain.

4. On page 2-12, provide a reference for the statement in the first paragraph that the erosion rate is a cubic function of wind speed.

Response: Respirable particle emission rate may be estimated using an equation developed by Cowherd, in which the vertical transport of particles smaller than ten microns in diameter is assumed to be proportional to the cube of the wind speed (Cowherd 1984).

5. The second paragraph on page 3-21 implies that only emission rates from undisturbed soil will be considered in the OU 1 risk assessment. Emission rates from soil disturbing activities such as excavation for future construction should also be considered in the risk assessment.

Response: Emission rates from excavation for hypothetical future commercial construction will be considered in the PHE. The batch drop model for emissions (Tistinic 1984) will be used to estimate emission rates.

6. The results of dispersion modelling to support the evaluation of the air pathways should be discussed along with the air monitoring data collected in OU 1.

Response: Where data is available and appropriate for comparison, the dispersion modeling results will be compared to measured air concentrations.

7. A procedure should be included in Section 3.4 for calibrating the surface water model to actual field conditions. Without field calibration, the Universal Soil Loss Equation model is potentially an inaccurate predictive tool.

Response: Preliminary calculations indicate that modeled overland flow concentrations in the south interceptor ditch (SID) are less than measured values. This is expected since the SID can receive runoff from other areas in addition to OU1. Now that measured concentrations are available, these values will be used in the exposure assessment.